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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,642	12/31/2003	Ernest K. Kenneway	DUN02 P-303A	9393

277 7590 11/12/2004

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EXAMINER

COUSO, JOSE L

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/749,642

Applicant(s)

KENNEWAY ET AL.

Examiner

Jose L. Couso

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/31/03</u> . | 6) <input type="checkbox"/> Other: _____ |

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1. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

2. Claims 2-4 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-3 of prior U.S. Patent No. 6,701,001. This is a double patenting rejection.

For example comparing representative claim 2 of the present application with representative claim 1 of issued U.S. Patent No. 6,701,001: Claim 2 of the present application recites: A part sorting system for automatically inspecting a plurality of uninspected parts, the system sorting acceptable parts from defective parts, the system comprising: (Claim 1 of issued U.S. Patent No. 6,701,001 recites: A part sorting system for automatically inspecting a plurality of uninspected parts, the system sorting acceptable parts from defective parts, the system comprising:); Claim 2 of the present application continues to recite: a feed conveyor for receiving a plurality of uninspected parts, the feed conveyor distributing and moving the uninspected parts through an inspection area (Claim 1 of issued U.S. Patent No. 6,701,001 continues to recite: a feed conveyor for receiving a plurality of uninspected parts, the feed conveyor distributing and moving the uninspected parts through an inspection area); Claim 2 of the present

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application continues to recite: a sorting camera for capturing an image of each of the plurality of uninspected parts as the plurality of uninspected parts move through the inspection area (Claim 1 of issued U.S. Patent No. 6,701,001 continues to recite: a sorting camera for capturing an image of each of the plurality of uninspected parts as the plurality of uninspected parts move through the inspection area); Claim 2 of the present application continues to recite: at least one rejection valve, the rejection valve functioning to direct a defective part such that the defective part is separated from inspected acceptable parts (Claim 1 of issued U.S. Patent No. 6,701,001 continues to recite: at least one rejection valve, the rejection valve functioning to direct a defective part such that the defective part is separated from inspected acceptable parts); Claim 2 of the present application continues to recite: and a computer system including a processor coupled to the feed conveyor, the sorting camera and the at least one rejection valve, wherein the processor executes an inspection routine that controls the speed of the feed conveyor, the scanning rate of the sorting camera and the at least one rejection valve, and wherein the processor executing the inspection routine compares at least one edge of the captured image to at least one stored template image to determine whether an uninspected part is defective (Claim 1 of issued U.S. Patent No. 6,701,001 continues to recite: and a computer system including a processor coupled to the feed conveyor, the sorting camera and the at least one rejection valve, wherein the processor executes an inspection routine that controls the speed of the feed conveyor, the scanning rate of the sorting camera and the at least one rejection valve, and wherein the processor executing the inspection routine compares at least

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one edge of the captured image to at least one stored template image to determine whether an uninspected part is defective); Claim 2 of the present application continues to recite: a vibratory conveyor including a platform having a top surface and a bottom surface, the vibratory conveyor distributing the plurality of uninspected parts in a substantially even manner across the top surface of the platform and providing the plurality of uninspected parts of the feed conveyor (Claim 1 of issued U.S. Patent No. 6,701,001 continues to recite: a vibratory conveyor including a platform having a top surface and a bottom surface, the vibratory conveyor distributing the plurality of uninspected parts in a substantially even manner across the top surface of the platform and providing the plurality of uninspected parts of the feed conveyor). As the comparison shows the claims are word for word identical.

Claim 3 of the present application recites: wherein the top surface of the platform is made of a metal that is substantially covered with a material, the material serving to increase the energy absorption and surface friction of the top surface of the platform (Claim 2 of issued U.S. Patent No. 6,701,001 recites: wherein the top surface of the platform is made of a metal that is substantially covered with a material, the material serving to increase the energy absorption and surface friction of the top surface of the platform). As the comparison shows the claims are word for word identical.

Claim 4 of the present application recites: wherein the vibratory conveyor further includes: a plurality of resilient fiberglass legs mechanically coupled to and supporting the bottom surface of the platform; and an air cylinder mechanically coupled to the bottom surface of the platform, the air cylinder varying the magnitude and frequency of

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the vibration of the platform in response to the processor (Claim 3 of issued U.S. Patent No. 6,701,001 recites: wherein the vibratory conveyor further includes: a plurality of resilient fiberglass legs mechanically coupled to and supporting the bottom surface of the platform; and an air cylinder mechanically coupled to the bottom surface of the platform, the air cylinder varying the magnitude and frequency of the vibration of the platform in response to the processor). As the comparison shows the claims are word for word identical.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5, 9, 11-12, 16 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Tao (U.S. Patent No. 5,960,098).

With regard to claim 1, Tao describes a feed conveyor for receiving a plurality of uninspected parts, the feed conveyor distributing and moving the uninspected parts through an inspection area (see figure 1, element 20, the apples before inspection correspond to applicant's uninspected parts, the inspection area is the area directly underneath the imaging chamber, i.e. element 25, which is discussed in column 4, lines 57-59); a sorting camera for capturing an image of each of the plurality of uninspected parts as the plurality of uninspected parts move through the inspection area (refer for example to column 4, lines 59-61); at least one rejection valve, the rejection valve

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functioning to direct a defective part such that the defective part is separated from inspected acceptable parts (see figure 1, element 30 and refer for example to column 4, line 62 through column 5, line 8); and a computer system (see figure 1, element 50 and refer to column 5, line 16) including a processor (see figure 1, element 55 and refer for example to column 4, line 16-18) coupled to the feed conveyor, the sorting camera and the at least one rejection valve (as clearly shown in figure 2 and as discussed in column 5, lines 14-16), wherein the processor executes an inspection routine that controls the speed of the feed conveyor, the scanning rate of the sorting camera and the at least one rejection valve (refer for example to column 5, lines 38-50, column 6, lines 13-23 and column 6, lines 59-61), and wherein the processor executing the inspection routine compares at least one edge of the captured image to at least one stored template image to determine whether an uninspected part is defective (refer for example to column 10, lines 15-49). In the last cited portion Tao describes a knowledge base which includes data on the types of defects (such as gradients which correspond to applicant's edges) and the characteristics or features of those types of defects. This knowledge base is used to extract features of defective segments which are then used to determine defects in the observed captured images. The stored knowledge base of data information of images corresponds to applicant's stored templates images.

As to claim 5, Tao describes a height sensor coupled to the processor and positioned adjacent the inspection area, the height sensor providing an indication of the height of each of the plurality of uninspected parts to the processor (refer for example to

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column 10, lines 36-42, the image processor extracts the size from the image obtained by the camera, i.e. sensor, the size includes the height).

In regard to claim 9, Tao describes wherein the sorting camera is a line scan charge coupled device (CCD) camera (refer for example to column 5, lines 63-65).

As to claim 11, Tao describes an electric motor coupled to the processor, the electric motor driving the feed conveyor responsive to the processor (see figure 2, element 80 and refer for example to column 5, lines 40-42); and an encoder coupled to the processor, the encoder providing an indication of the speed of the motor and hence the associated speed of the feed conveyor, wherein the processor sets a scan rate for the sorting camera responsive to the speed of the feed conveyor (see figure 2, element 90 and refer for example to column 6, lines 6-40). Note that in figure 2, the encoder is labeled as "90", whereas in the descriptive portion of the specification cited is identified as element "92". This appears to be an erroneous labeling of the figure element, as is clear that lightning element "90" in figure 2 is also correctly identified as element "90" in column 6, line 1.

With regard to claim 12, Tao describes receiving a plurality of uninspected parts (see figure 1, element 20, the apples before inspection correspond to applicant's uninspected parts); distributing and moving the uninspected parts through an inspection area (see figure 1, elements 20 and 25, the inspection area is the area directly underneath the imaging chamber which is discussed in column 4, lines 57-59); capturing an image of each of the plurality of uninspected parts as the plurality of uninspected parts move through the inspection area (refer for example to column 4,

lines 59-61); comparing at least one edge of the captured image of each of the plurality of uninspected parts to at least one stored template image to determine whether an uninspected part is defective (refer for example to column 10, lines 15-46); and directing a defective part such that the defective part is separated from inspected acceptable parts (refer for example to column 10, lines 46-49). In the last cited portion Tao describes a knowledge base which includes data on the types of defects (such as gradients which correspond to applicant's edges) and the characteristics or features of those types of defects. This knowledge base is used to extract features of defective segments which are then to determine defects in the observed captured images. The stored knowledge base of data information of images corresponds to applicant's stored templates images.

In regard to claim 16, Tao describes determining the height of each of the plurality of uninspected parts (refer for example to column 10, lines 36-42, the image processor extracts the size from the image obtained by the camera, i.e. sensor, the size includes the height).

As to claim 18, Tao describes setting a scan rate for a sorting camera responsive to the speed of a feed conveyor, wherein the sorting camera captures an image of each of the plurality of uninspected parts and the feed conveyor distributes and moves the uninspected parts through an inspection area (refer for example to column 6, lines 6-23).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6, 17, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tao (U.S. Patent No. 5,960,098) in view of Roth (U.S. Patent No. 4,876,728).

The arguments advanced in section 4 above, as to the applicability of Tao, are incorporated herein.

Although Tao does not specifically describe the usage of a light source for backlighting the plurality of uninspected parts as the plurality of uninspected parts move through the inspection area, the backlighting enhancing the ability of a sorting camera to capture gray scale images of each of the plurality of uninspected parts, such an element is well known and widely utilized in the prior art.

Roth discloses a vision system for distinguishing touching parts which provides for using a light source for backlighting the plurality of uninspected parts as the plurality of uninspected parts move through the inspection area, the backlighting enhancing the ability of a sorting camera to capture gray scale images of each of the plurality of uninspected parts (refer for example to column 20, lines 16-20).

Given the teachings of the two references and the same environment of operation, namely that of inspection using image analysis, one of ordinary skill in the art at the time the invention was made would have been led in an obvious fashion to provide for using a light source for backlighting the plurality of uninspected parts as the plurality of uninspected parts move through the inspection area, as the backlighting

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would be enhancing the ability of a sorting camera to capture gray scale images of each of the plurality of uninspected parts. This is an engineering design, the substitution of functionally equivalent elements namely different image capture techniques, which fails to patentably distinguish over the prior art absent some novel and unexpected result.

With regard to claim 20, Tao describes wherein the processor only compares edge pixels of the captured image to the at least one stored template image to determine whether each of the uninspected objects is defective (refer for example to column 10, lines 15-49). Tao describes a knowledge base which includes data on the types of defects (such as the gradient of the image which correspond to applicant's edge pixels of the image) and the characteristics or features of those types of defects. This knowledge base is used to extract features of defective segments which are then used to determine defects in the observed captured images. The stored knowledge base of data information of images corresponds to applicant's stored templates images. The examiner would like to further point out that Roth provides backlighting and thus only edges of an object would appear in the obtained image. The combination of Tao and Roth would therefore provide for the processor to compare only edge pixels of the captured image to the at least one stored template image to determine whether each of the uninspected objects is defective.

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tao (U.S. Patent No. 5,960,098) in view of Roth (U.S. Patent No. 4,876,728) and further in view of Christian et al. (U.S. Patent No. 4,696,047).

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The arguments advanced in sections 4 and above, as to the applicability of Tao and Roth, are incorporated herein.

Although neither Tao nor Roth describe that the light source is provided via a plurality of optical fibers, such elements are well known and widely utilized in the prior art.

Christian discloses an apparatus for automatically inspecting electrical connecting pins which provides for using a light source is provided via a plurality of optical fibers (refer for example to column 2, line 66 through column 3, line 3).

Given the teachings of the references and the same environment of operation, namely that of inspection using image analysis, one of ordinary skill in the art at the time the invention was made would have been led in an obvious fashion to provide for using a light source is provided via a plurality of optical fibers as taught by Christian in the combination Tao and Roth system since all systems are primarily concerned with inspection using image analysis. This is an engineering design, the substitution of functionally equivalent elements, namely a different light source, which fails to patentably distinguish over the prior art absent some novel and unexpected result.

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tao (U.S. Patent No. 5,960,098) in view of Archer et al. (U.S. Patent No. 5,638,657).

The arguments advanced in section 4 above, as to the applicability of Tao, are incorporated herein.

Although Tao does not specifically describe a hopper for receiving the plurality of uninspected parts, the hopper providing the uninspected parts to the conveyor, such an element is well known and widely utilized in the prior art.

Archer discloses a system and method for automatically feeding, inspecting and diverting tablets for continuous filling of tablet containers which provides for using a hopper for receiving the plurality of uninspected parts, the hopper providing the uninspected parts to the conveyor (refer for example to column 5, lines 19-51).

Given the teachings of the two references and the same environment of operation, namely that of inspection using image analysis, one of ordinary skill in the art at the time the invention was made would have been led in an obvious fashion to provide for using a hopper for receiving the plurality of uninspected parts, the hopper providing the uninspected parts to the conveyor as taught by Archer in the Tao system since both systems are primarily concerned with inspection using image analysis. This is an engineering design done for increasing the flexibility and production in a conveyor system (as suggested by Archer in column 6, lines 5-8), which fails to patentably distinguish over the prior art absent some novel and unexpected result.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tao (U.S. Patent No. 5,960,098) in view of Buckley et al. (U.S. Patent No. 6,064,759).

The arguments advanced in section 4 above, as to the applicability of Tao, are incorporated herein.

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Although Tao does not specifically describe using a CMOS camera, such an element is well known and widely utilized in the prior art.

Buckley discloses a computer aided inspection machine which provides for using a CMOS camera for inspecting parts (refer for example to column 13, lines 53-65).

Given the teachings of the two references and the same environment of operation, namely that of inspection using image analysis, one of ordinary skill in the art at the time the invention was made would have been led in an obvious fashion to provide for using a CMOS camera for inspecting parts as taught by Buckley in the Tao system since both systems are primarily concerned with inspection using image analysis. This is an engineering design, the substitution of functionally equivalent elements, namely a CMOS camera for a CCD camera that is routinely done (as suggested by Buckley in column 13, line 66 through column 14, line 3), and which fails to patentably distinguish over the prior art absent some novel and unexpected result.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jose L. Couso whose telephone number is (703) 305-4774. The examiner can normally be reached on Monday through Friday from 6:30 to 3:00.

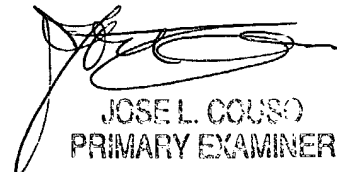
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached on (703) 305-4706. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-8576.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jlc
October 26, 2004



JOSE L. COUSO
PRIMARY EXAMINER